## REMARKS

Claims 11 and 12 have been canceled and replaced by new claims 41 and 42. This amendment was done for clarity, more specifically, to avoid redundancies and to provide antecedent support outside the preamble. In addition, the claims recite that the reactivatable adhesive is adhesively bonded to the substrate on which it is to be reactivated and that following reactivation, the substrates are adhesively bonded together. No new matter has been added. Entry is respectfully requested.

Claims 11-14, 20, 21, 29-31, 39 and 40 are rejected as being obvious over Souder (U.S. Patent No. 4,156,626) in view of Adams et al. (U.S. Patent No. 5,425,218) or Mullaney (U.S. Patent No. 3,331,293) and optionally further in view of any one of Chin (U.S. Patent No. 3,462,916), Landrum et al. (U.S. Patent No. 5,562,795) or Hittenberger et al. (U.S. Patent No. 3,340,777).

Souder is cited by the examiner as disclosing a method of closing a paperboard container having applied on at least one surface thereof a reactivatable adhesive. The examiner urges that Souder teaches the reactivatable adhesive is a hot melt (e.g., a thermoplastic) and comprises an energy-absorbing ingredient such as an ordinary organic dye or pigment that upon exposure to radiant energy is capable of reactivating the adhesive. The examiner refers to col. 4, lines 33-44 and 60-63 and col. 6, lines 28-30 and 67-68 and col. 7, lines 1-2. Souder is also cited as teaching providing a container having a first substrate surface with a reactivatable adhesive applied thereon, exposing the applied adhesive to visible and near infrared radiant energy to reactivate the applied adhesive, and then pressing the first substrate surface to a second substrate surface to close the container. The examiner refers to Figure 2 and col. 4, lines 33-44 and col. 5, lines 49-55. The examiner urges that Souder teaches a plurality of the containers are closed through a

continuous operation, referring again to Figure 2 and to col. 5, lines 55-58). While the examiner acknowledges that Souder fails to specify the time required for reactivating the adhesive and pressing the first substrate surface, the examiner urges that Souder teaches the line speed of the continuous operation is controlled by adjusting the area and intensity of the applied radiant energy such that high efficiency heating is obtained. The examiner refers to col. 7, lines 17-33 and col.9, lines 54-56 and col.10, lines 1-2, and thus it is the position of the examiner that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize these parameters as a function of the quality of product produced as doing so would require nothing more than routine skill and routine experimentation.

The examiner further urges that it would be obvious to one of ordinary skill in the art at the time the invention was made to operate the continuous container closing operation taught by Souder under conventional closing times of less than one second as it was well known and conventional in the art to efficiently produce continuously closed containers using a reactivatable adhesive with a closing time of one second or less as shown by either one of Adams et al. or Mullaney. Chin, Landrum et al. and Hittenberger et al. are each cited as further disclosing that conventional continuous container closing lines operate at speeds of 70 to 300 containers per minute.

Adams et al. and Mullaney et al. are applied by the examiner as being exemplary of conventional continuous container closing line operations in the art using reactivatable adhesives wherein the time to reactivate the adhesives and close the containers in one second or less. The examiner refers to col. 1, lines 19-24, col.4, lines 22-38 and col.5, lines 55-58 of Adams and col. 1, lines 14-18, 25-31 and 47-58 and col. 3, lines 59-62 of Mullaney.

Chin, Landrum et al. and Hittenberger et al. are applied by the examiner as being exemplary of conventional continuous container closing line operations in the art using

reactivatable adhesives wherein the lines operate at speeds of 70 to 300 containers per minute. The examiner refers to Figure 1, col. 2, lines 50-53 and col.5, lines 57-66 of Chin, to Figure 1 and col. 5, lines 40-44 of Landrum and to Figure 1, col.1, lines 51-Adams and col. 1, lines 14-18, 25-31 and 47-58 and col. 3, lines 59-62 of Mullaney.

Souder describes thermal sealing of surfaces by using visible light emissions which are disclosed as having characteristics that enhance focusability. It is the essential feature of Souder that visible light be used (see, abstract (line 12); col. 4, lines 30, 34, 61, and 65; col. 6, lines 8, 33, and 48; col. 7, line 13/14; col. 8, line 2, col. 9, line 31, 46, and 49). An inspection of the prosecution history also confirms that use of visible light is essential to the practice of the invention.

Souder further teaches treating discrete areas of the surface with a marking (i.e., printing inks and dyes) absorbent of the focused radiant energy. While it is apparent from the disclosure, including drawing figures, that preferably the surface to be sealed is itself marked so as to improve the transmission of heat energy from the marked subsurface into the coating layer to be heated, use of a coating layer dyed in a discrete area or application of a pigment adhesive in a discrete area only are also disclosed as possibilities. Souder also discloses, as being preferable, that both of the contacting surfaces (lapped sheets) are coated (see, col. 5, lines 50-54). The exemplified coating layer is a thermoplastic material such as a polyethylene plastic.

While Souder broadly discloses that use of pigmented adhesives are possible, no particular adhesive comprising an energy absorbing additive is exemplified. As will be appreciated, the Souder patent reference issued over 25 years ago (May 29, 1979). The examiner will recognize from his own search that no body of art directed to reactivation of pre-applied adhesives comprising pigments/dyes, which adhesive may be reactivated using a radiant energy source as described and claimed by applicants, has emerged. Complete lack of related

prior art 25 years following the issuance of Souder is convincing evidence of the non-obviousness of the claimed invention, particularly in view of Adams and Mullaney secondary references. Neither and of the Chin, Landrum or Hittenberger patent cure this defect.

Souder in view of Adams or Mullaney does not render obvious use of a reactivatable pre-applied adhesive that can be reactivated upon exposure to the adhesive of radiant of less than about 10 seconds, as claimed by applicants, to bond substrates together, even when such combined disclosures are further taken in view of any of the Chin , Landrum or Hittenberger disclosures.

Adams discloses pre-application of a heat activated adhesive to carton blanks. The adhesive is activated using heaters and then set using cooling means. Mullaney discloses, for sealing of containers (milk, juice and the like) comprising coated paper stock, use of a gas-fired infra-red heating unit to melt the plastic coating to softening point necessary to form a bond. Chin discloses sealing of cartons comprising adhesively treated flaps by inserting a nozzle bar between the flaps to thereby subject the flaps to a combination of heat from the nozzle bar and hot air discharged therefrom. Landrum discloses a heat sealing apparatus wherein adhesive is reactivated using a heated air stream, which air is recaptured following activation to prevent excessive heating of the conveyor. Hittenberger discloses bonding together sheets of thermoplastically pre-coated (e.g., a polyethylene coating) paperboard by application of heat and pressure using a two chamber heat exchanger through the center of which a heating element extends. None of the secondary or tertiary documents suggest that the process of Souder could be run at conventional line speeds. The combined disclosures fail to suggest a reasonable likelihood of success using the process of Souder, and fails to suggest applicants invention or provide any reasonable expectation of success. The claimed invention would not even be obvious to try from the combined disclosures of record.

Applicants claimed invention would not be obvious from the cited references. Reconsideration and withdrawal of the rejection of claims 11-14, 20, 21, 29-31, 39 and 40 are rejected as being obvious over Souder in view of Adams et al. or Mullaney and optionally further in view of any one of Chin, Landrum et al. or Hittenberger et al. is requested.

Caims 22, 24, 32 and 34 are rejected as being obvious over Souder in view of Adams et al. or Mullaney and optionally further in view of any one of Chin, Landrum et al. or Hittenberger et al., and further in view of Jones et a. (WO 00/20157).

The examiner urges that the combination of Souder, either one of Adams et al. or Mullaney, and optionally any one of Chin, Landrum et al. or Hittenberger et al., teach all of the limitations of claims 22, 24, 32 and 34 except for a specific teaching of dissolving the dye in the reactivatable adhesive.

Souter is, however, cited by the examiner as teaching dyeing the adhesive such that the dye is carried within the adhesive, and thus, appears to disclose dissolving the dye within the adhesive. The examiner refers to col.4, lines 39-44, col. 6, lines 67-68 and col. 7, lines 1-2, of Souter. It is the position of the examiner, in any event, that it would have been obvious to one of ordinary skill in the art at the time the invention was made to dissolve the dye taught by Souter within the reactivatable adhesive for maximum dye utility/efficiency as was conventional in the art as exemplified by Jones.

Jones et al. is cited by the examiner as disclosing a method form bonding together two substrates (e.g., thin film) using a reactivatable adhesive. The examiner urges that Jones teach the reactivatable adhesive is a hot melt (e.g., thermoplastic) and comprises and comprises an energy-absorbing ingredient such as an organic dye dissolved in the adhesive that upon exposure to radiant energy is capable of reactivating the adhesive. The examiner refers to page 2, lines 27-33, page 3, lines 10-37, page 4, lines 1-3, 12-16 and 25-29, page 5, lines 28-34 and page 11, lines

10-13). The examiner further urges that Jones teach providing a first substrate surface having the reactivatable adhesive applied thereon (e.g., coextruded or overmolded), exposing the applied adhesive to near-infrared and infrared radiant energy to reactivate the applied adhesive and then pressing the first substrate to a second substrate. The examiner refers to Figure 2, page 6, lines 6-13, page 8, lines 4-29, page 9, lines 8-14 and page 11, lines 14-18.

Jones et al. does not teach or suggest a bonding together two substrates using a reactivatable adhesive. Jones does not discloses a reactivatable material that is an adhesive, let alone a hot melt adhesive, that comprises an energy-absorbing ingredient such as an organic dye dissolved in the adhesive that upon exposure to radiant energy is capable of reactivating the adhesive.

The Jones reference is directed to a method of forming a *weld* between two work pieces. The examiner is referred to Figure 2 of Jones and to the Jones disclosure on page 8, lines 20-27:

> when the joint region 13 is exposed to the radiation beam 14, the weld material 16 absorbs heat causing heating of the surrounding joint region 3 [sic, 13]. Consequently the plastic workpieces 11, 12 melt in the joint region 13 and on cooling form a *weld* (emphasis added).

Reference is also made to page 7, lines 29-33, of Jones:

> *Welding* occurs as a result of the heat generated giving melting of the plastic material up to a depth of typically 0.2mm. Where *compatible* material is in good contact *interdiffusion of molecules and hence welding* will occur (emphasis added).

Thus, Jones teaches a process of welding, not a process of adhesive bonding as claimed by applicants. Not only does the Jones disclosure lacks any reference to an adhesive, but a fair reading of the Jones disclosure by one of ordinary skill in the art is that Jones relates to a welding process whereby two substrates are welded together, not to a process of bonding substrates together using an adhesive composition. Applicants' adhesive is used to bond a first substrate to a second substrate. In contrast, Jones' insert is used to weld a first substrate to a second substrate. Again,

one skilled in the art would not equate the process of bonding using an adhesive with the process of welding.

While applicants maintain the position that one skilled in the relevant arts would not equate the process of bonding using an adhesive with the process of welding, Jones clearly fails to disclose or even suggest that an adhesive pre-applied on a substrate can be reactivated upon exposure to radiant energy for a period of time of less than about 10 seconds and used to join that substrate to a second substrate.

Applicants claimed invention would not be obvious from the cited references. Reconsideration of the rejection of claims 22, 24, 32 and 34 as being obvious over Souder in view of Adams et al. or Mullaney and optionally further in view of any one of Chin, Landrum or Hittenberger, and further in view of Jones is requested.

Claims 11, 20-22, 24 and 40 are rejected as being obvious over Jones et al in view of Foglia et al. (U.S. Patent No. 3,560,291).

Jones is again cited as disclsoing the bonding of two substrates (films) together using a reactivatable adhesive. Foglia is cited as teaching that films can be bonded together in fractions of a second using radiant energy. The examiner urges that it would be obvious that the films of Jones can be bonded together in fractions of seconds as described by Foglia.

Again, Jones does not teach or suggest a bonding together two substrates using a reactivatable adhesive. Jones does not discloses a reactivatable material that is an adhesive, let alone a hot melt adhesive, that comprises an energy-absorbing ingredient such as an organic dye dissolved in the adhesive that upon exposure to radiant energy is capable of reactivating the adhesive. Rather, Jones teach welding of substrates together. Applicants' adhesive is used to adhesively bond a first substrate to a second substrate. In contrast, Jones' insert is used to weld a

first substrate to a second substrate (i.e., by commingling of the insert material with the first and second substrates).

Applicants claimed invention would not be obvious from the cited references. Reconsideration of the rejection of claims 11, 20-22, 24 and 40 as being obvious over Jones et al

Applicants acknowledge that hot melt adhesives are conventionally used to seal containers and that the adhesives may be pre-applied and then reactivated prior to sealing. The prior art fails to suggest that use of an energy absorbing ingredient can be used to increase the speed of reactivation. Indeed, one skilled in that art would not know if the addition of dyes and/or pigments to adhesives, including hot melt adhesives, would interfere with the initial application of adhesive to the substrate, or the bonding of adhesive to the substrate, let alone whether the adhesive could be efficiently reactivated in a short period of time. Applicants submit that the examiner has failed to establish a *prima facie* case of obviousness.

The prior art, taken as a whole, provides no motivation or suggestion to combine the references. Moreover, the prior art fails to disclose or suggest all of the required limitations. Applicants argue that it would not even be obvious to try the combination claimed by applicants from the combined disclosures of the prior art applied by the examiner. Applicants respectfully submit that as any motivation were derived through the improper use of applicants' own disclosure.

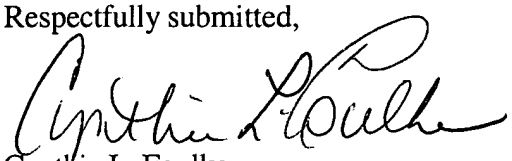
The prior art does not suggest or provide any motivation to use energy absorbing ingredients in amounts needed to reactivate an adhesive present on a substrate upon exposure to less than about 10 seconds of radiant energy as claimed by applicants. The combined prior art fails to suggest the claimed modification or a reasonable expectation of success. At the very most it may perhaps be argued in hindsight that it may be obvious to try, but obvious-to-try is not the standard for determining obviousness.

The combined prior art does not disclose or suggest the elected species of the elected

invention. Applicants request indication of allowance of the claims currently under consideration and early and favorable examination of the withdrawn species (claims 23, 25-28, 33 and 35-38).

Early and favorable action is solicited.

Respectfully submitted,



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April 14, 2005

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